

ID	WBS	Task Name	Duration	Start	Finish	Cost Center	Fixed Cost	Cost	Active	Cost per Unit	Resource Cost	2017				2018				2019				2020				2021											
												Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4			
1		1 MAPS Inner Barrel	1217 days	Mon 10/3/16	Tue 6/1/21		\$0.00	\$3,293,462.00		\$0.00	\$995,752.00																												
2	1.1	MAPS Inner Barrel Starts	0 days	Sat 10/1/16	Sat 10/1/16		\$0.00	\$0.00		\$0.00	\$0.00	◆ 10/1																											
3	1.2	MAPS Inner Barrel Ends	0 days	Tue 6/1/21	Tue 6/1/21		\$0.00	\$0.00		\$0.00	\$0.00	◆ 10/3																											
4	1.3	Milestones & Key Tasks	0 days	Mon 10/3/16	Mon 10/3/16		\$0.00	\$0.00		\$0.00	\$0.00	◆ 10/3																											
5	1.3.1	ALICE ITS Key Tasks	0 days	Mon 1/2/17	Mon 1/2/17		\$0.00	\$0.00		\$0.00	\$0.00	◆ 1/2																											
6	1.3.1.1	ALICE MAPS Production (7/17)	240 days?	Mon 8/1/16	Fri 6/30/17		\$0.00	\$0.00		\$0.00	\$0.00	◆ 1/2																											
7	1.3.1.2	ALICE ITS IB FPC Production (9/17)	90 days	Mon 5/1/17	Fri 9/1/17		\$0.00	\$0.00		\$0.00	\$0.00	◆ 1/2																											
8	1.3.1.3	ALICE ITS IB Stave Production (1/18)	1 day?	Tue 1/2/18	Tue 1/2/18		\$0.00	\$0.00		\$0.00	\$0.00	◆ 1/2																											
9	1.3.1.4	ALICE ITS IB Stave Assembly (3/18)	262 days	Mon 1/2/17	Tue 1/2/18		\$0.00	\$0.00	ITS c	\$0.00	\$0.00	◆ 1/2																											
10	1.3.1.5	ALICE ITS Electronics Pre-Production (7/17)	100 days	Wed 2/22/17	Tue 7/11/17		\$0.00	\$0.00	ITS E	\$0.00	\$0.00	◆ 1/2																											
11	1.3.1.6	ALICE ITS Electronics Production (6/18)	240 days	Thu 7/13/17	Wed 6/13/18		\$0.00	\$0.00	ITS E	\$0.00	\$0.00	◆ 1/2																											
12	1.3.2	sPHENIX Milestones	1195 days	Tue 11/1/16	Tue 6/1/21		\$0.00	\$0.00		\$0.00	\$0.00	◆ 1/2																											
13	1.3.2.1	sPHENIX Technical Design CD-0	0 days	Tue 11/1/16	Tue 11/1/16		\$0.00	\$0.00	CD-0	\$0.00	\$0.00	◆ 1/2																											
14	1.3.2.2	sPHENIX Technical Design (CD-1/CD-3a)	0 days	Wed 11/1/17	Wed 11/1/17		\$0.00	\$0.00	CD-1	\$0.00	\$0.00	◆ 1/2																											
15	1.3.2.3	sPHENIX Technical Dewsgin (CD-2)	0 days	Mon 7/2/18	Mon 7/2/18		\$0.00	\$0.00	CD-2	\$0.00	\$0.00	◆ 1/2																											
16	1.3.2.4	sPHENIX Start Construction (CD-3b)	0 days	Wed 8/1/18	Wed 8/1/18		\$0.00	\$0.00	CD-3	\$0.00	\$0.00	◆ 1/2																											
17	1.3.2.5	sPHENIX Installed and Ready for Beam	0 days	Tue 6/1/21	Tue 6/1/21		\$0.00	\$0.00	ready	\$0.00	\$0.00	◆ 1/2																											
18	1.3.3	LDRD Milestones & Critical Tasks	781 days	Mon 10/3/16	Mon 9/30/19		\$0.00	\$0.00		\$0.00	\$0.00	◆ 1/2																											
19	1.3.3.1	LDRD Start and End	781 days	Mon 10/3/16	Mon 9/30/19		\$0.00	\$0.00		\$0.00	\$0.00	◆ 1/2																											
20	1.3.3.8	Complete MoU LANL-ALICE	0 days	Fri 12/9/16	Fri 12/9/16		\$0.00	\$0.00		\$0.00	\$0.00	◆ 1/2																											
21	1.3.3.3	Setup ALICE Readout Test Stands	0 days	Fri 2/17/17	Fri 2/17/17		\$0.00	\$0.00		\$0.00	\$0.00	◆ 1/2																											
22	1.3.3.4	Complete final sPHENIX Readout Design Review	0 days	Wed 7/26/17	Wed 7/26/17		\$0.00	\$0.00		\$0.00	\$0.00	◆ 1/2																											
23	1.3.3.5	Complete Final MAPS Detector Design (CD-1)	0 days	Thu 11/16/17	Thu 11/16/17		\$0.00	\$0.00		\$0.00	\$0.00	◆ 1/2																											
24	1.3.3.6	sPHENIX Test Beam	21 days	Fri 2/1/19	Fri 3/1/19	LDRD	\$0.00	\$0.00		\$0.00	\$0.00	◆ 1/2																											
25	1.3.3.7	MAPS Final Design (CD-2/CD-3)?	0 days	Mon 10/3/16	Mon 10/3/16		\$0.00	\$0.00		\$0.00	\$0.00	◆ 10/3																											
26	1.5	sPHENIX Project	1217 days?	Mon 10/3/16	Tue 6/1/21		\$0.00	\$3,293,462.00		\$0.00	\$995,752.00	◆ 10/3																											
27	1.5.1	sPHENIX Project Management	1217 days	Mon 10/3/16	Tue 6/1/21		\$0.00	\$126,568.00	sPHE	\$0.00	\$126,568.00	◆ 10/3																											
28	1.5.1.1	Level 3 Project Manager	1217 days	Mon 10/3/16	Tue 6/1/21		\$0.00	\$0.00		\$0.00	\$0.00	◆ 10/3																											
29	1.5.1.2	Mechanical Liason Engineer	1217 days	Mon 10/3/16	Tue 6/1/21		\$0.00	\$63,284.00		\$0.00	\$63,284.00	◆ 10/3																											
30	1.5.1.3	Electronics Liason Engineer	1217 days	Mon 10/3/16	Tue 6/1/21		\$0.00	\$63,284.00		\$0.00	\$63,284.00	◆ 10/3																											
31	1.5.2	sPHENIX Mechanics Integration	289 days	Thu 11/2/17	Tue 12/11/18		\$0.00	\$272,936.00		\$0.00	\$162,936.00	◆ 10/3																											
32	1.5.2.1	Stave Support Frame & Global Interface to sPHENIX	115 days	Thu 11/2/17	Wed 4/11/18		\$0.00	\$128,536.00		\$0.00	\$78,536.00	◆ 10/3																											
33	1.5.2.1.1	Mechanical and Heat Analysis and Initial Design (modify ALICE)	30 days	Thu 11/2/17	Wed 12/13/17		\$0.00	\$27,240.00		\$0.00	\$27,240.00	◆ 10/3																											
34	1.5.2.1.2	prototype	60 days	Thu 12/14/17	Wed 3/7/18		\$50,000.00	\$77,936.00		\$0.00	\$27,936.00	◆ 10/3																											
35	1.5.2.1.3	test	10 days	Thu 3/8/18	Wed 3/21/18		\$0.00	\$7,760.00		\$0.00	\$7,760.00	◆ 10/3																											
36	1.5.2.1.4	final design	15 days	Thu 3/22/18	Wed 4/11/18		\$0.00	\$15,600.00		\$0.00	\$15,600.00	◆ 10/3																											
37	1.5.2.2	Cooling System	25 days	Wed 8/1/18	Tue 9/4/18		\$0.00	\$43,360.00		\$0.00	\$23,360.00	◆ 10/3																											
38	1.5.2.2.1	Design (modify ALICE)	10 days	Wed 8/1/18	Tue 8/14/18		\$0.00	\$10,400.00		\$0.00	\$10,400.00	◆ 10/3																											
39	1.5.2.2.2	Mock up Testing	10 days	Wed 8/15/18	Tue 8/28/18		\$20,000.00	\$27,760.00		\$0.00	\$7,760.00	◆ 10/3																											
40	1.5.2.2.3	Final Desgin of Cooling System	5 days	Wed 8/29/18	Tue 9/4/18		\$0.00	\$5,200.00		\$0.00	\$5,200.00	◆ 10/3																											
41	1.5.2.3	Safety Systems	70 days	Wed 9/5/18	Tue 12/11/18		\$0.00	\$56,400.00		\$0.00	\$36,400.00	◆ 10/3																											
42	1.5.2.3.1	review sensors & interlocks	10 days	Wed 9/5/18	Tue 9/18/18		\$0.00	\$5,200.00		\$0.00	\$5,200.00	◆ 10/3																											
43	1.5.2.3.2	electrical interlock design	30 days	Wed 9/19/18	Tue 10/30/18		\$10,000.00	\$25,600.00		\$0.00	\$15,600.00	◆ 10/3																											
44	1.5.2.3.3	cooling interlocks design	30 days	Wed 10/31/18	Tue 12/11/18		\$10,000.00	\$25,600.00		\$0.00	\$15,600.00	◆ 10/3																											
45	1.5.2.4	Stave Assembly Tooling	45 days	Thu 4/12/18	Wed 6/13/18		\$0.00	\$44,640.00		\$0.00	\$24,640.00	◆ 10/3																											
46	1.5.2.4.1	design	10 days	Thu 4/12/18	Wed 4/25/18		\$0.00	\$10,400.00		\$0.00	\$10,400.00	◆ 10/3																											
47	1.5.2.4.2	prototype	30 days	Thu 4/26/18	Wed 6/6/18		\$20,000.00	\$31,640.00		\$0.00	\$11,640.00	◆ 10/3																											
48	1.5.2.4.3	final jig design	5 days	Thu 6/7/18	Wed 6/13/18		\$0.00	\$2,600.00		\$0.00	\$2,600.00	◆ 10/3																											
49	1.5.3	Mechanics Final Design Review	12 days	Thu 6/14/18	Fri 6/29/18		\$0.00	\$7,280.00		\$0.00	\$7,280.00	◆ 10/3																											
50	1.5.3.1	Mechanics Final Design Review	1 day	Thu 6/14/18	Thu 6/14/18		\$0.00	\$1,040.00		\$0.00	\$1,040.00	◆ 10/3																											
51	1.5.3.2	Incorporate Review Comments	10 days	Fri 6/15/18	Thu 6/28/18		\$0.00	\$5,200.00		\$0.00	\$5,200.00	◆ 10/3																											
52	1.5.3.3	Complete Final Mechanical Design	1 day	Fri 6/29/18	Fri 6/29/18		\$0.00	\$1,040.00		\$0.00	\$1,040.00	◆ 10/3																											

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												Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1
53	1.5.4	MAPS Inner Barrel Review (CD-2/3)	12 days	Mon 7/2/18	Tue 7/17/18		\$0.00	\$14,560.00		\$0.00	\$14,560.00																						
54	1.5.4.1	MAPS Final Design Review	1 day	Mon 7/2/18	Mon 7/2/18		\$0.00	\$2,080.00		\$0.00	\$2,080.00																						
55	1.5.4.2	Incorporate Review Comments	10 days	Tue 7/3/18	Mon 7/16/18		\$0.00	\$10,400.00		\$0.00	\$10,400.00																						
56	1.5.4.3	Complete Final Design (CD-2)	1 day	Tue 7/17/18	Tue 7/17/18		\$0.00	\$2,080.00		\$0.00	\$2,080.00																						
57	1.5.5	Productions	534 days?	Thu 6/14/18	Tue 6/30/20		\$0.00	\$2,621,718.00	Prod	\$0.00	\$434,008.00																						
58	1.5.5.1	Full Pre-Production-Mechnical System Mock Up Test	90 days	Thu 6/14/18	Wed 10/17/18		\$50,000.00	\$103,640.00		\$0.00	\$53,640.00																						
59	1.5.5.2	Procurements	180 days?	Wed 8/1/18	Tue 4/9/19		\$0.00	\$2,311,534.00		\$0.00	\$173,824.00																						
60	1.5.5.2.1	CERN Procurements	180 days?	Wed 8/1/18	Tue 4/9/19		\$0.00	\$1,144,212.40		\$0.00	\$141,542.40																						
61	5.5.2.1.1	Produce 68 Inner Staves	180 days	Wed 8/1/18	Tue 4/9/19		\$445,670.00	\$585,350.00		\$6,500.00	\$139,680.00																						
62	5.5.2.1.2	Stave Production Full Cost Recovery of CERN Manpower	180 days	Wed 8/1/18	Tue 4/9/19		\$500,000.00	\$500,000.00		\$7,353.00	\$0.00																						
63	5.5.2.1.3	Other ITS/CERN Test Equipment Items	120 days	Wed 8/1/18	Tue 1/15/19		\$30,000.00	\$31,862.40		\$0.00	\$1,862.40																						
64	5.5.2.1.4	Travel and Per Diem at CERN	180 days?	Wed 8/1/18	Tue 4/9/19		\$27,000.00	\$27,000.00		\$0.00	\$0.00																						
65	1.5.5.2.2	Non-CERN Procurements	107 days	Wed 8/1/18	Thu 12/27/18		\$0.00	\$1,167,321.60		\$0.00	\$32,281.60																						
66	5.5.2.2.1	Procure 68 Readout /RDO Units	100 days	Wed 8/1/18	Tue 12/18/18		\$265,740.00	\$281,260.00		\$4,700.00	\$15,520.00																						
67	5.5.2.2.2	Procure Optical Links 68	60 days	Thu 8/2/18	Wed 10/24/18		\$81,600.00	\$82,531.20		\$620.00	\$931.20																						
68	5.5.2.2.3	Procure 34 Common Readout Units	100 days	Fri 8/3/18	Thu 12/20/18		\$181,700.00	\$183,252.00		\$5,300.00	\$1,552.00																						
69	5.5.2.2.4	sPHENIX CRU Production Contingency	100 days	Fri 8/3/18	Thu 12/20/18		\$90,000.00	\$90,000.00		\$0.00	\$0.00																						
70	5.5.2.2.5	Procure 100 SamTec Cables	60 days	Mon 8/6/18	Fri 10/26/18		\$27,000.00	\$27,931.20		\$270.00	\$931.20																						
71	5.5.2.2.6	Procure Ancillary Materials (LVPS and cables etc)	100 days	Tue 8/7/18	Mon 12/24/18		\$100,000.00	\$101,552.00		\$0.00	\$1,552.00																						
72	5.5.2.2.7	Procure Cooling Plant	100 days	Wed 8/1/18	Tue 12/18/18		\$40,000.00	\$41,552.00		\$0.00	\$1,552.00																						
73	5.5.2.2.8	Procure Assembly Fixtures & Jigs	60 days	Thu 8/2/18	Wed 10/24/18		\$100,000.00	\$100,931.20		\$0.00	\$931.20																						
74	5.5.2.2.9	Procure End Wheels	100 days	Fri 8/3/18	Thu 12/20/18		\$34,000.00	\$35,552.00		\$0.00	\$1,552.00																						
75	5.5.2.2.10	Procure Cylindrical Structural Shells	100 days	Mon 8/6/18	Fri 12/21/18		\$11,000.00	\$12,552.00		\$0.00	\$1,552.00																						
76	5.5.2.2.11	Procure Detector Half Barrels	100 days	Tue 8/7/18	Mon 12/24/18		\$13,000.00	\$14,552.00		\$0.00	\$1,552.00																						
77	5.5.2.2.12	Procure Service Half Barrels	100 days	Wed 8/8/18	Tue 12/25/18		\$120,000.00	\$121,552.00		\$0.00	\$1,552.00																						
78	5.5.2.2.13	Procure Detector and Service Half Barrels	100 days	Thu 8/9/18	Wed 12/26/18		\$21,000.00	\$22,552.00		\$0.00	\$1,552.00																						
79	5.5.2.2.14	Procure Two Half Support Structures	100 days	Fri 8/10/18	Thu 12/27/18		\$50,000.00	\$51,552.00		\$0.00	\$1,552.00																						
80	1.5.5.3	Assembly and Testing at BNL	400 days	Wed 12/19/18	Tue 6/30/20		\$0.00	\$206,544.00		\$0.00	\$206,544.00																						
81	1.5.5.3.1	Test Production FEMS, e-Links, CRU, LV, optical links	60 days	Tue 12/25/18	Mon 3/18/19		\$0.00	\$13,968.00		\$0.00	\$13,968.00																						
82	1.5.5.3.2	Assemble & Test Cooling System	20 days	Wed 12/19/18	Tue 1/15/19		\$0.00	\$7,760.00		\$0.00	\$7,760.00																						
83	1.5.5.3.3	Stave Reciept Inspection	10 days	Wed 4/10/19	Tue 4/23/19		\$0.00	\$3,880.00		\$0.00	\$3,880.00																						
84	1.5.5.3.4	Individual Stave Readout Test	70 days	Wed 4/24/19	Tue 7/30/19		\$0.00	\$10,864.00		\$0.00	\$10,864.00																						
85	1.5.5.3.5	Metrology on Stave Assemblies	70 days	Wed 7/31/19	Tue 11/5/19		\$0.00	\$41,720.00		\$0.00	\$41,720.00																						
86	1.5.5.3.6	Assemble full Ladders into Half support	100 days	Wed 11/6/19	Tue 3/24/20		\$0.00	\$24,832.00		\$0.00	\$24,832.00																						
87	1.5.5.3.7	Metrology on Final Assembly	10 days	Wed 3/25/20	Tue 4/7/20		\$0.00	\$10,400.00		\$0.00	\$10,400.00																						
88	1.5.5.3.8	Half detector Assembly Readout and Cooling Test	60 days	Wed 4/8/20	Tue 6/30/20		\$0.00	\$93,120.00		\$0.00	\$93,120.00																						
89	1.5.6	Installation	131 days	Wed 7/1/20	Wed 12/30/20		\$0.00	\$250,400.00		\$0.00	\$250,400.00																						
90	1.5.6.1	Installation Prep	10 days	Wed 7/1/20	Tue 7/14/20		\$0.00	\$15,520.00		\$0.00	\$15,520.00																						
91	1.5.6.2	Installation Review	1 day	Wed 7/15/20	Wed 7/15/20		\$0.00	\$2,080.00		\$0.00	\$2,080.00																						
92	1.5.6.3	Installation	60 days	Thu 7/16/20	Wed 10/7/20		\$0.00	\$186,240.00		\$0.00	\$186,240.00																						
93	1.5.6.4	Commissioning	60 days	Thu 10/8/20	Wed 12/30/20		\$0.00	\$46,560.00		\$0.00	\$46,560.00																						
94	1.5.7	Ready for beam	0 days	Wed 12/30/20	Wed 12/30/20		\$0.00	\$0.00		\$0.00	\$0.00																						